

a substrate on which said liquid crystal display panel, the data driver, and the gate driver are integrally formed,

wherein the data driver is divided into a plurality of blocks arranged side by side along a single edge of the liquid crystal display panel, and each of said blocks has a plurality of signal lines that extend into said liquid crystal display panel and are connected to a plurality of data bus lines via analog switches, a number of said data bus lines being larger than a number of said signal lines, and display signals being supplied from said signal lines of each block to said data bus lines simultaneously.

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REMARKS

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached Appendix is captioned "**Version with markings to show changes made.**"

Claims 1-15 stand rejected under 35 U.S.C. § 102 (e) as being anticipated by Youn. Applicants respectfully traverse this rejection because the cited reference does not disclose (or suggest) the feature of a data driver being divided into a plurality of blocks which are arranged adjacent to each other along a single edge of the liquid crystal display panel, as recited in independent claims 1, 14 and 15. Moreover, the Youn reference also does not disclose or suggest that the signal lines are connected to data bus lines via analog switches, that the number of data bus lines are larger than the number of signal lines, and that

display signals are supplied from the signal lines of each block to the data bus lines simultaneously, as also recited in claims 1, 14 and 15.

Youn shows data lines D1, D2, D3, . . . D2n that are positioned in an alternating arrangement on a liquid crystal panel, with the odd data lines (D1, D3, etc.) originating from a data driver 2a and the even data lines (D2, D4, etc.) originating from a data driver 2b. The two data drivers 2a and 2b are arranged on two separate and opposite edges of the liquid crystal panel (see Fig. 2).

In the present invention, the data driver is divided into a plurality of blocks which are arranged adjacent to each other along a single edge of the liquid crystal display panel, and not on two separate edges, as disclosed in the Youn reference. The present invention also includes signal lines that are connected to data bus lines via analog switches. The number of data bus lines is larger than the number of signal lines, and display signals are supplied from the signal lines of each block to the data bus lines simultaneously. These features are also not disclosed or suggested in the Youn reference. For these reasons, claims 1, 14 and 15 are allowable over the cited reference.

Claims 2-13 depend, directly or indirectly, from independent claim 1, and are also allowable for the same reasons given with respect to claim 1, and because of the additional features that they recite.

Claims 16 and 17 stand rejected under 35 U.S.C. § 102 (e) as being anticipated by Kubota et al. Applicants respectfully traverse this rejection because cited the reference

does not disclose (or suggest) the feature of a data driver being divided into a plurality of blocks. Each block has a plurality of signal lines that extend into the liquid display panel, and are connected to data bus lines via analog switches. The number of data bus lines is larger than the number of the signal lines, and display signals are supplied from the signal lines of each block to the data bus lines simultaneously.

The Kubota et al. reference discloses a voltage output circuit including a source driver having a scanning circuit 11, latches 41 and 41, and an output selecting circuit 43 for producing signals on a corresponding one of a plurality of signal lines SL (see Fig. 33). Even assuming that the combination of these devices can be equated to the claimed data driver block of the present invention, each of these "blocks" of Kubota et al. only has one signal line (SL). In contrast, each data driver block of the present invention includes a plurality of signal lines that extend into the liquid display panel. This feature is not disclosed (or suggested) in the cited reference.

Moreover, claim 16 also recites that the signal lines extend into the liquid display panel, and that they are connected to data bus lines via analog switches. The number of data bus lines is larger than the number of the signal lines, and display signals are supplied from the signal lines of each block to the data bus lines simultaneously. These features are also not disclosed or suggested in the Youn reference. For these reasons, claim 16 and its dependent claim 17 are allowable over Kubota et al.

For all of the above reasons, Applicants respectfully request reconsideration and allowance of the claimed invention. Should the Examiner be of the opinion that a telephone conference would aid in the prosecution of the application, or that outstanding issues exist, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 1, 12 and 14-16 have been amended as follows:

1. (Three times amended) A liquid crystal display device including a data driver and a gate driver, comprising:

a liquid crystal display panel; and

a substrate on which said liquid crystal display panel, and ~~said~~ the data driver, and ~~said~~ the gate driver are integrally formed,

the data driver being divided into a plurality of blocks so as to divide the liquid crystal display panel into sections arranged side by side, which simultaneously supply the liquid crystal display panel with display signals respectively supplied thereto;

wherein each of said blocks includes a plurality of signal lines that are connected to a plurality of data bus lines via analog switches, a number of said data bus lines being larger than a number of said signal lines, said display signals being supplied from the signal lines of each block to the data bus lines simultaneously, and said blocks are arranged adjacent to each other along a single edge of the liquid crystal display panel.

14. (Twice amended) A liquid crystal display device including a data driver and a gate driver, comprising:

a liquid crystal display panel; and

groups of signal lines for carrying display signals, said signal lines within each of said groups being adjacent to each other along a single edge of ~~the~~ said liquid crystal display panel,

the data driver being divided into a plurality of adjacently arranged blocks from which ~~the~~ said groups of signal lines extend over corresponding partial areas of ~~the~~ said liquid crystal display panel so that each of ~~the~~ said groups of signal lines is associated with a respective one of ~~the~~ said blocks of the data driver, wherein said signal lines in each of said blocks are connected to a plurality of data bus lines via analog switches, a number of said data bus lines is larger than a number of said signal lines, and the display signals are supplied form the signal lines of each block to the data bus lines simultaneously.

15. (Twice amended) A liquid crystal display device including a data driver and a gate driver, comprising:

a liquid crystal display panel, and

signal lines extending from the data driver and carrying display signals,

the data driver and the signal lines being divided into a plurality of blocks so that ~~the~~ said divided signal lines extending from one of ~~the~~ said plurality of blocks extend over a corresponding divided area of ~~the~~ said liquid crystal display panel,

~~said divided signal lines in each of~~ wherein the said plurality of blocks ~~being~~ are adjacent to each other along a single edge of ~~the~~ said liquid crystal display panel, said divided signal lines in each of said plurality of blocks are connected to a

plurality of data bus lines via analog switches, a number of said data bus lines being larger than a number of said signal lines, and display signals being supplied from said signal lines of each of said blocks to said data bus lines simultaneously.

16. (Twice amended) A liquid crystal display device including a data driver and a gate driver, comprising:

a liquid crystal display panel; and

a substrate on which said liquid crystal display panel, ~~said~~ the data driver, and ~~said~~ the gate driver are integrally formed,

wherein the data driver-being is divided into a plurality of blocks arranged side by side along a single edge of the liquid crystal display panel, and each of said blocks has a plurality of signal lines that extend into said liquid crystal display panel and are connected to a plurality of data bus lines via analog switches, a number of said data bus lines being larger than a number of said signal lines, and display signals being supplied from said signal lines of each block to said data bus lines simultaneously.